

Environmental Assessment of the Lane Landfill;Indianapolis, IndianaOwnership of the Site

The Marion County assessors records show that McKinley Thompson owns this site which has a mailing address of 3434 S. Harding St., Indianapolis, Indiana 46217. According to a letter from Lane Restoration to Dave Lamm of the Indiana State Board of Health, dated September 12, 1977, W. J. Lane was negotiating the purchase of the McKinley Thompson site. The Marion County assessors records do not show this transaction as taking place.

Physical Description

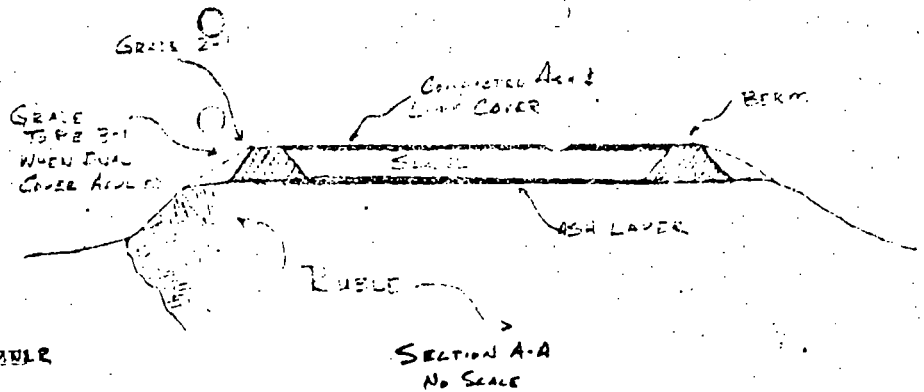
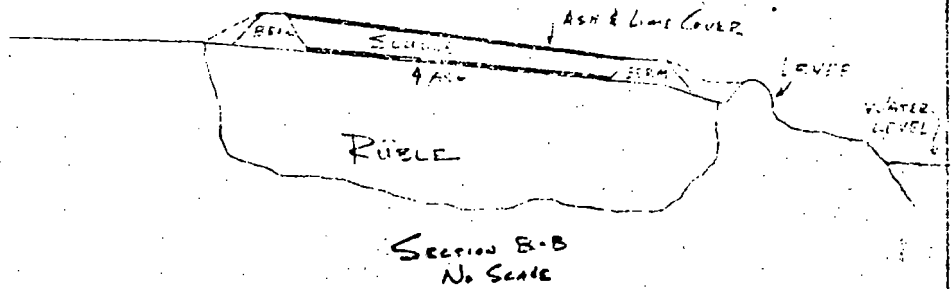
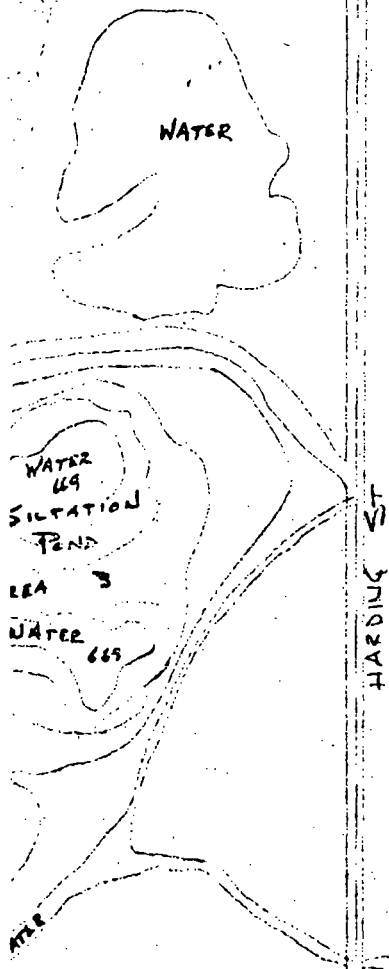
The Lane Landfill (McKinley Thompson site) is located in Marion County, Perry Township, Indianapolis, Indiana, in the east half of the northwest 1/4 of Section 27, Township 15 North, Range 3 East. This parcel of land is 89.074 acres, with the land zoned as wood/wasteland. According to correspondence from I.S.B.H., Mr. Lane purchased 76 acres of this parcel in September, 1977.

Nature of Materials Disposed of at Site

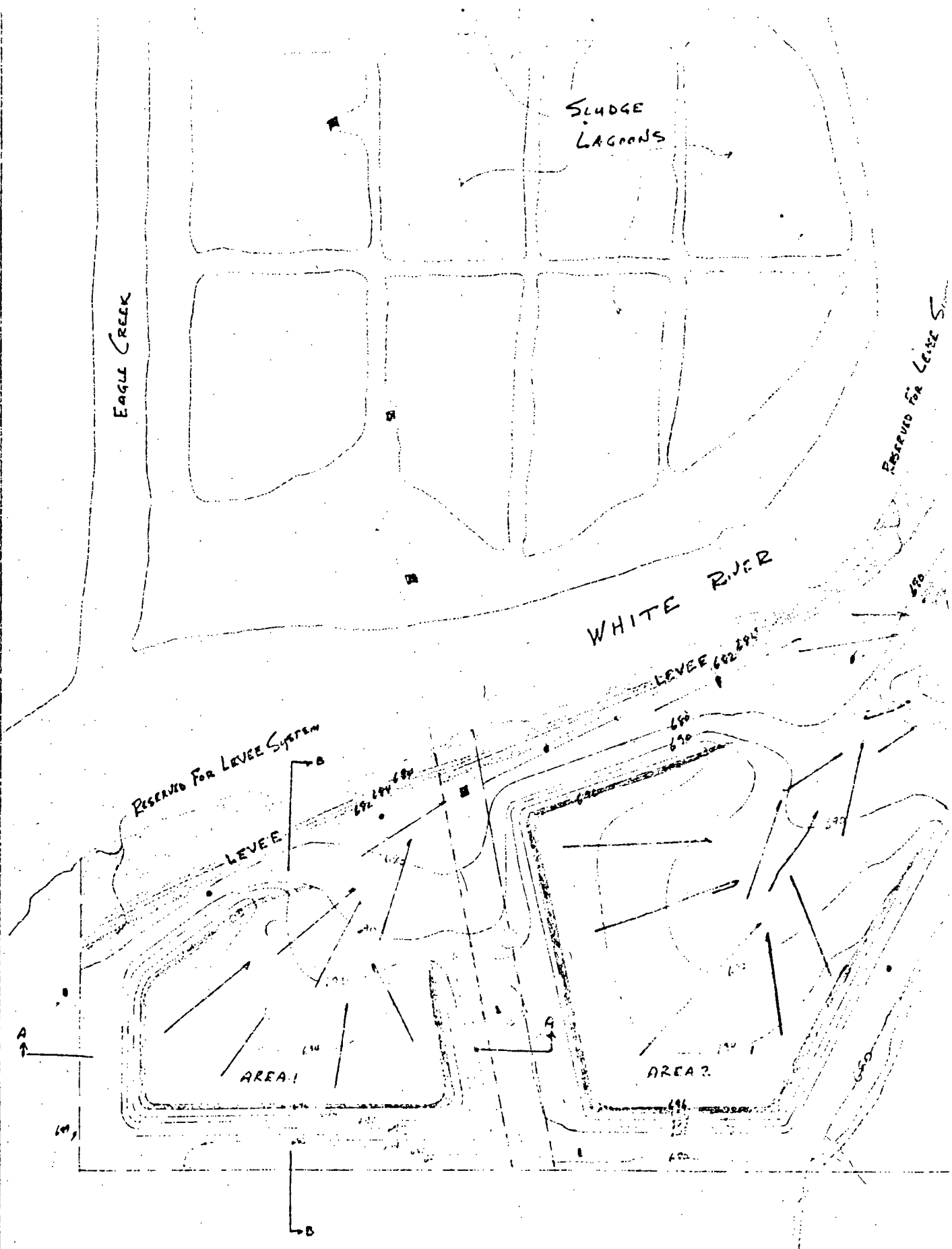
The Lane Landfill was originally a gravel pit. After the gravel operations ceased an 82 foot deep lake remained in the middle of the 50 acre site. This is located in the southwest area of the total parcel of land. Beginning in 1913 the area was used for a dump. Over the years the dump has been used for garbage, demolition, and construction debris. The debris was pushed into the lake and is now approximately 25 feet above the level of the lake.

In 1940 McKinley Thompson bought the site. At that time only about 35 acres of the total parcel of land were used for dumping purposes. Under Thompson's ownership the area was primarily used as a dump for demolished houses. The dumping of garbage ceased. In 1977 Jack Lane purchased the site and put out fires that had been occurring at the site by using sludge from the lagoons at Belmont Sewage Treatment plant, which is north of the site. This material was supposed to be the dried sludge and soil from the bottoms of the lagoons but it happened that the contractor was also disposing unpumpable sludge which was contaminated with heavy metals and PCBs.

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<p>BALANCE 9-13-78</p>	<p>3200 HARDING STREET BERM, DRAINAGE FLOW & SILTATION POND</p>
	<p>LAND REFORMATION INC 4600 BLUFF ROAD INDIANAPOLIS, IN 46210</p>



SITE PLAN - AREA 1
SCALE 1" = 200'

Description of Surrounding Area

There are private residences east of the landfill site, east of Harding Street. The western boundary of the site is the White River. Eagle Creek flows into the White River just north of the site. The City of Indianapolis' Belmont Sewage Treatment plant is north of the site; and discharges effluent into the river upstream of the landfill site. To the west of White River and the site is the Kentucky Ave. Landfill. This landfill which is accepting solid wastes has been in operation since late 1971. South of the landfill site is the Perry Substation for the Indianapolis Power and Light Co.

Geology and Groundwater

Logs from wells located northwest and southeast of the landfill show a column consisting of top soil, clay, sand and gravel, sand, gravel and clay, coarse gravel, limestone, and shale. The shallow aquifer system in the area consists of shallow sands and gravels separated by clay stringers. Below the shallow system is a 10'-20' shale bed underlain by a limestone aquifer. The hydraulic connection between the shallow and deep aquifers is not known. The White River lies on outwash sands and gravels which are in communication with the shallow aquifer system. The lateral extent of these outwash deposits is unknown at present but the location of the fill leads the author to believe that the disposal site is located on this outwash.

Depth to groundwater is dependent on the level of water in the White River. It is generally at or near the same elevation as river level. Groundwater flow in the shallow aquifer system is toward the north (White River). The flow direction in the deeper limestone aquifer is not known.

According to a recent site plan, the landfill area varies in elevation from 668 at the retention pond to 696 at the top of the berm around the fill area. The level along the north edge of the site is at elevation 684 while the drainage ditch southeast of the site is at elevation 680. Surface water from the site drains into the retention pond on the northeast corner of the site. The possibility exists for surface water to enter the drainage ditch via the retention pond.

The 100 year flood stage in the area is approximately at elevation 686. The majority of sludge disposal probably occurred at an elevation above this point.

The surface area of the fill is covered with STP sludge and flyash from a nearby power substation. The flyash is very light and porous material which could be easily eroded. Other than the sludge and flyash, the fill is unfinished.

Plant and Animal Communities

According to the Indiana Dept. of Natural Resources the industrialized area around the landfill is generally not supporting any plant or animal life. Just south of the Lane Landfill is an Indianapolis Power and Light Company power plant - substation complex. To the east is a residential area with typical landscape vegetation. Fish that inhabit the White River upstream of the Belmont Treatment Plant and the adjacent gravel and sandpits include carp, bass, crappie, and sunfish. The only fish found downstream from the Belmont Plant is carp. This is attributed to the low oxygen levels for at least 16 miles below the sewage treatment plant.

Migratory birds (Canadian Geese) rely on the White River as a major flightway and often stop at various points, including some areas close to the landfill site. Significant degradation of water quality or quantity would probably result in birds stopping above the outfall of any point source of pollution.

Less mobile plant life is no longer affected by the area or its development.

General Hydrology

According to USGS, Marion County is totally within the watershed of the West Fork of the White River, except a small point in the southeast corner which is in the East Fork of the White River. The average annual precipitation is 39.3 inches and the use of water in 1971 was estimated at 126 MGD, of which 50 MGD (40%) was groundwater. About 30% of the annual precipitation percolates through the soil and eventually reaches the water table in the White River and Fall Creek valleys. The recharge rates to the hydraulically connected aquifers in the fill plain are much less than the annual precipitation.

The local hydrologic conditions found at the landfill site closely parallel the condition of the White River. During periods of high water level in the river, the shallow aquifer systems recharge. At low water levels, the shallow aquifers discharge and maintain base flow.

Sampling and Chemical Analysis History

In early 1977 chemical analysis was done by U.S. EPA on the lagoon sludge from the Belmont Treatment Plant. The parameters were averaged and compared to July 1975 samples analyzed by Purdue University. This analysis was done to determine the cadmium application rate for land application of sludge on farmlands.

In September, 1977, EPA did an analysis for Lane Restoration on the flyash that they were going to put on the sludge for final cover of the landfill. The analysis was done for PCBs and heavy metals and it was found to be below contaminant levels.

In July, 1978, September, 1978, and October, 1978, Lane Restoration did an analysis for cyanide of the sludge from the lagoons being disposed of, to determine if ISBH would approve disposal.

Currently the city consultant is finalizing a leachate study of the sludge that was disposed of in the landfill. Results show that contaminate levels for PCBs (.001 mg/l) were exceeded at the release mode (1 gram dry sludge to 10 ml of solution) at higher chlorinated biphenyls (Aroclor 1260) 25% of the time. Of all the other parameters the only other component of analysis that is higher than allowable contaminant levels in the release mode is total dissolved solids. It exceeds contaminant levels 25% of the time. The contaminant levels were presented to USEPA from the City of Indianapolis in a letter dated October 15, 1979.

Since late 1977 the Indiana State Board of Health, Division of Sanitary Engineering, Solid Waste Management Section has been making monthly inspections of the Lane Landfill site. During the inspections of September and November 1978 samples were taken of sludge for a leachate test. Parameters tested were total solids and cyanide.

Presently the city's consultant is finalizing a sludge leachate study to try to determine what environmental impact the sludge disposal had on the Lane Landfill.

There are not any existing permits for the landfill site since it has been inactive since early 1979. There has been no legal action against this site since Jack Lane of Lane Restoration purchased the site in 1977.

Conclusions and Recommendations

David Hoppock, Director of the Department of Public Works, City of Indianapolis, in a letter to Robert Penno of the Water Pollution Control Indiana State Board of Health, estimated quantities of sludge that were disposed of at Lane Landfill. The amount of material put into the Lane Landfill by the city was 200,000 yds³, 17,000 yds³ ash, and 16,000 yds³ of clay totalling 233,000 yds³. The estimated amount of refuse and demolition debris disposed in this landfill was calculated from the site plan, information of dumping activities from the Environmental Impact Analysis done by the City Consultant, and by looking at the U.S.G.S. topographic map dated 1967. The elevation of sludge was shown to be 686 from the memorandum of the meeting held at Lane Landfill September 13, 1979.

Area 1 shown on the site plan is approximately 600 ft. x 400 ft. x 8 ft. deep of sludge, ash and lime/sludge mixture which is about 71,000 yds³. Area 2 is 700 ft. x 700 ft. x 8 ft. deep of the same material which is about 145,000 yds³. The total material would be 216,000 yds³ which is very close to the actual estimated amount of 233,000 yds³. At one time, there was a large lake on the site which was thought to be 82 ft. deep. A refuse, demolition debris mixture was dumped into this lake to where the landfill itself was 25 ft. about the level of the lake. Assuming that the lake water level is about the same level as

the river, (664) then the depth of fill would be about 107 ft. (The bottom of the lake would be at elevation 582). If the lake encompassed the area of Area 1 and Area 2 the total land area would be $1,430,000 \text{ ft.}^2 \times 107 \text{ ft depth}$ and would equal approximately $5,700,000 \text{ yds}^3$. From these calculations 3% of the disposal material is the sludge mixture from the Belmont Treatment Plant lagoons.

It is not necessary to take water samples of the White River because the Belmont Sewage Treatment Plant, and many industrial users discharge into the river upstream of the landfill site. Because the groundwater flows into the White River in the area, there would probably be more than one source of contamination in water samples from the river. Possible sources are the Belmont Sludge Lagoons, and the Kentucky Ave. Landfill which is northeast of the landfill site across the river.

From the findings presented in this report it is recommended that the Lane Landfill complete closure operations by covering it with clay and top soil, grading to gentle slope of 5:1 and seeding it with grass. It is then possible that this site can be used as a parking lot or an industrial storage area. Someone from the state and/or USEPA should be on site to inspect and make certain that Lane Restoration completes the closure operations correctly.